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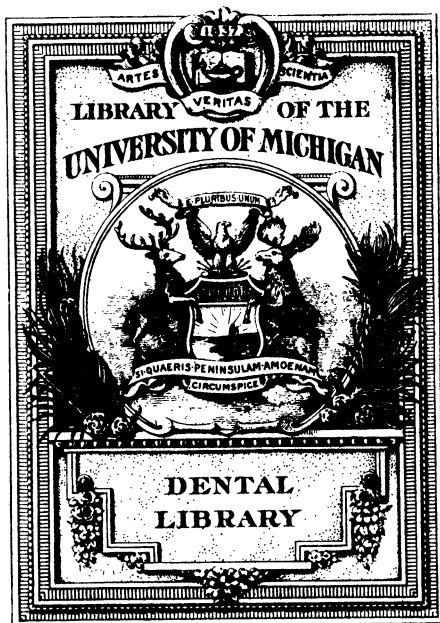
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JANUARY 4th

YEAR 1911

# *The* AMERICAN DENTAL JOURNAL

Edited By  
BERNARD J. CIGRAND, M. S., D. D. S.

## DECLARATION:

*Devoted to advancing the art and science of dentistry;  
Arousing a deeper conception of our duty to the public;  
Instilling a broader and more liberal professional spirit;  
Aiding in elevating the plane of dental organizations;  
Supporting state boards in executing dental laws;  
Lending assistance to worthy and ethical practitioners;  
Instituting library and college extension courses;  
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{ Volume X  
{ Number 1

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## TABLE OF CONTENTS.

### Editorial Comments.

Two Methods for Conferring National Recognition Upon Dental Degrees.	
By DR. B. J. CIGRAND.....	1
In the Wake of the Editorial on Illegality of Dental Clinics, as Now Operated.	
By DR. B. J. CIGRAND.....	7

### Special Contributions.

A Ballad of the Dollar.	
By J. D. ROBERTSON, D. D. S.....	14
Logical Reasons Why Miller's Micro-Organic Theories of Caries Causes Are Microbic Errors.	
By J. OXFORD KELLER, D. D. S.....	15
The Restoration of a Badly Decayed Molar by Means of the Gold Crown.	
By GEORGE B. HARRIS, B. S., D. D. S.....	27
The Mouth-Health and Morals of School Children.	
By W. A. EVANS, M. D.....	28
A Reply.	
By J. P. ROOT, Kansas City, Mo.....	23

### European Progress.

The Treatment of Trigeminal Neuralgia by Injections of Alcohol.	
By ALFRED W. CAMPBELL, M. D.....	36

### Practical Suggestions..... 44

### Everybody's Corner..... 45

### In Memoriam..... 47

### Announcements..... 48

### Wanted, For Sale, Exchange..... 49

### Index to Advertisers..... 3

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# *The* AMERICAN DENTAL JOURNAL

DR. BERNARD J. CIGRAND, Editor

Published on the fourth of every month by The  
Ross Dental Manufacturing Company.

## *Editorials and Comments*

"The editor assumed charge of this journal with the signed understanding that he shall have absolute and unlimited control and supervision of the editorial and literary elements; this unusual grant makes it possible to render the profession an independent peri-

odical; the title page clearly indicates the scope under the new policy of this old established journal."—*Publishers.*

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## TWO METHODS FOR CONFERRING NATIONAL RECOGNITION UPON DENTAL DEGREES.

---

The editorial in the November issue entitled, "The State, Bi-State, Tri-State, Multi-State and National Clinics Are Illegally Operated," has awakened deep and widespread interest and the campaign begun by the AMERICAN DENTAL JOURNAL to make possible that these gatherings shall be conducted legally or new laws of a common sense character placed upon the statute books of the states continues.

It is evident to any student of the dental laws that the profession suffers considerably because of the antiquated, puzzling and senseless laws which still control reputable practitioners who hail from reputable dental colleges, and whose diplomas were recognized after passing an extended and rigid examination at the hands of reputable state boards of dental examiners.

Take the situation or circumstance of the boy who has finished a course in a reputable common school. He enters a high school of merit, where, after four years of diligent study, he completes the

course and matriculates in the dental department of a state university or other reputable institution having a dental department. After spending four years of his time in faithful study, he is recommended to the trustees as worthy of the degree of Doctor of Dental Surgery. He now presents the diploma to the state board of dental examiners, who, after commenting on the splendid school he hails from, inform him that while the school is of the highest possible order and of the most modernly equipped kind, with distinguished men as his teachers, he must remember that the professors who have taught him were unable during their four years of daily contact to determine his proficiency, but that the state board in four days can easily arrive at the answer.

The law demands that he submit himself to the ordeal—usually immediately upon his trying and nerve-exhausting college finals, and after managing to put in the required operative work under unusual surrounding circumstances, involving meager equipment and faulty accommodations, and a like order regarding his prosthetic work, and the same peculiar and oft grotesque routine in the didactic—he finally—he ultimately—he really, yes—he actually passes the state board and is told that he now is a legally qualified practitioner of dental surgery—except that he must yet register at some county clerk's office.

What a victory; What a triumph! How extolled he must feel to know that at last he is admitted to practice a science and an art of unusual depth and breadth of latitude.

He now belongs—he thinks he does—to a learned, liberal and profoundly conceived profession. He is proud of the educational climax which reared him to so high a pinnacle and opens a well furnished, modernly equipped and splendidly arranged dental office. Diligence while at the schools taught him that patience and perseverance accomplish much, and while the wait seems long and the wallet stays small, yet a lapse of three years brought him the hand of a sweet life mate and companion. Her home is in a neighboring state; her people are prominent in a thriving city. Her folks are well acquainted and have a social standing which would lend strength to a dental practice, and a thought occurs to the young wife. How delightful if her husband of distinguished dental training would agree to go with her back to the parental home. They could live cheaper, happier and certainly the practice would be better. She

soliloquizes: "Why, we can attend all the merry socials, join the happy throng of my acquaintances. I'll sing, I'll speak, I'll play, and what a joy!" Eagerly she informs her doctor husband of the dream of her soul! He listens and, half captivated by her serene confidence and fascinated by her enthusiasm for the battle of professional eminence, he will—when he awakens to the thought that there is also a state board in her native state. He attempts to explain how all these faculty associations, examiners' associations and various state laws regulate dental practice. How he is a recognized, reputable and ethical practitioner in his present office, but in her state his diploma, from the highest and most proficient teachers of the most reputable university in the republic and his license granted by the severest, most exacting and distinguished board of dental examiners, all this has no value in her state. He confesses: "I am a successful practitioner here, I understand the anatomy, physiology, pathology, histology, bacteriology and prosthesis of these people here, but according to the laws it would seem your people in your town are either differently constituted or possibly they doubt my knowledge and the seal of my diploma and signature of my state board license." This naturally confused the common sense of the young wife and she exclaimed: "Really, I don't understand that; it's too complex for me, and beats cook book recipes to a fry." He replies: "Nobody else understands it; some states, a few, on certain conditions accord reciprocity." Here the wife interrupted: "Please don't use such words; please don't try to explain. That word reciprocity is a political term, and please don't get mixed up in politics."

Well, fear of the state board made them forego the change of residence. He knew more about dentistry because of his five years' actual practice, but that had no value. He was tied to a stake and stuck by in a faithful way. The magnitude of the degree dwindled and the foggish law with its unreasonable demands robbed him of his pursuit of happiness.

If the state dental board must be the legal authority which determines who shall practice dentistry, why not carefully, painstakingly and justly examine the college of teachers, and if the college is sufficiently equipped and the professors proficiently informed, then let the graduate coming from such high standard institution whose examinations, both midwinter and final, given under the eye of the state

board or any member thereof, be the test, granting the diploma so far as the educational qualifications are concerned.

Let us all, colleges, fraternities and state boards, get together and solve this heterogeneous question of law as it pertains to dental practice. It can be done! It will be done! And by a rising army of students who, when they become practitioners, have the courage of their convictions and make the laws conform to common sense.

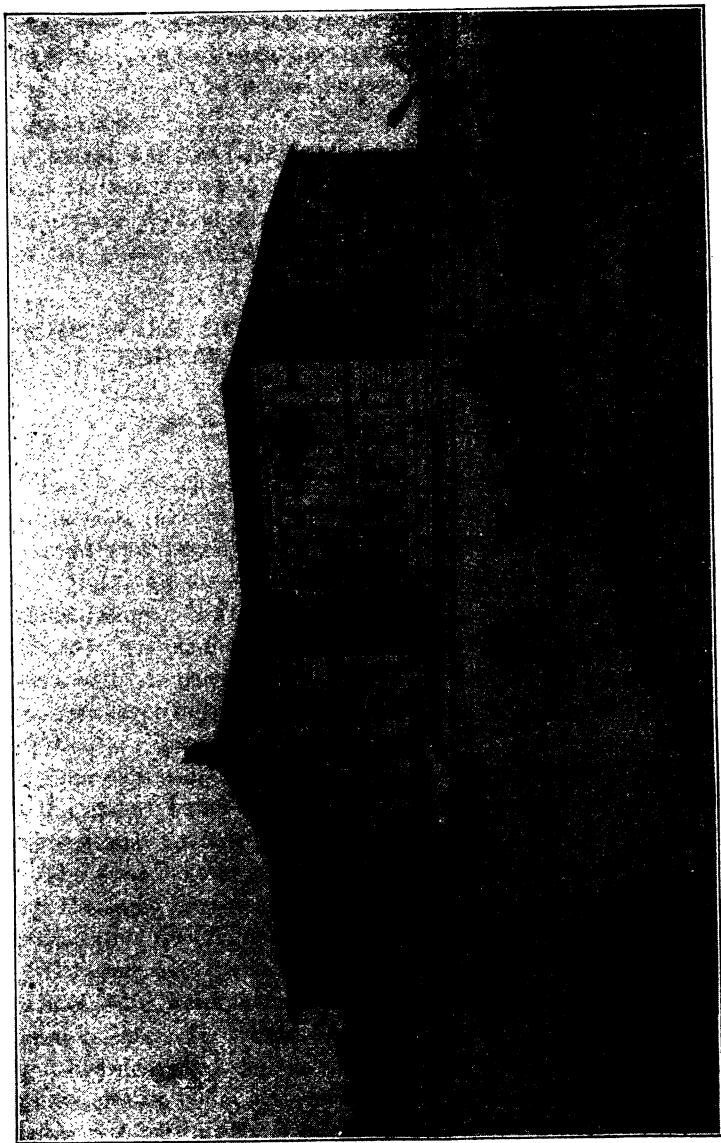
This problem confronts every reader; it relates to every practitioner, and concerns every undergraduate and postgraduate in the republic of the United States.

THE AMERICAN DENTAL JOURNAL has opened this campaign of recognition of clinicians when operating in other states and other countries and will attempt to devote editorial space every other month to the end that logical and legal recognition be accorded all practitioners who have graduated from reputable colleges and passed one state board examination. This means one grammar school, one high school, one dental college, one state dental board, and then privilege of practicing anywhere in the United States after diploma and license have been legally identified and entered.

How to accomplish that national recognition of diplomatsæ—"there is the rub." Start the ball a rolling by arranging a representative congress composed of delegates from state societies and delegates from the state board of dental examiners and dental colleges.

Such a body of distinguished dentists would soon arrive at the solution. Chicago once had a dental congress and years of progress were congested into a half score of days. A similar economy of time would come if a "Dental Legal Congress" were called. Let a uniform law of common sense elements be prepared under eminent legal advice, then pass it in the different states. That will afford the easiest national recognition in that all the states would operate under the same plan.

Or the second method of having a national recognition is to make an amendment to the Constitution of the United States, making a congressional act covering all the states and territories. This latter method is too heavy a load for a profession having so little political and newspaper influence, hence the first method, that of so revising present state laws as to admit of exchange of license—not reciprocity. Passing the same law in all the states is best.



THE CHICAGO ART INSTITUTE  
MEETING PLACE FIRST AMERICAN DENTAL CONGRESS  
WORLD'S COLUMBIAN EXPOSITION, 1893  
(Compliments of The American Dental Journal)





To correct this present bad condition will take time, fidelity to purpose and no little money; if you are concerned put your shoulders to the wheel; don't exhaust your energy cursing and blocking progress; unlock the brakes and a few honest, earnest boosts count more than a million knocks.

The spirit of the time demands action, concerted and unrelenting action. If you are of this mind and purpose, to be an aiding factor communicate your opinion and lend your good advice, as this campaign has justice and equity as its cardinal principles.

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### IN THE WAKE OF THE EDITORIAL ON ILLEGALITY OF DENTAL CLINICS, AS NOW OPERATED.

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BY B. J. CIGRAND, B. S., M. S., D. D. S.

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The November editorial certainly brought to the surface an intense interest in behalf of EITHER ENFORCING THE DENTAL LAWS OR ENACTING NEW ONES. These replies came from every section of the land. Maine on the east and California on the west figure in these splendid letters. North Dakota in the cold and Texas in the warmth all share in the conflict. While the Empire state with its wealth and Kansas with its patriotism eagerly get into the first skirmish. Chicago, ever eager to be seen and heard, takes a chance at the bat.

*Dear Doctor Cigrand:*

Your editorial in the November AMERICAN DENTAL JOURNAL hits the nail right on the head. The state dental laws at present are a delusion and a snare.

The state boards of dental examiners should get together and adopt the same laws to govern us by. A dental law that is good for one state should be a good law for us in all the states.

I do not agree with the editor that (enforce the laws or make new ones.—Ed.) clinicians should be required to take out a temporary clinical license. It is hard enough to get a good attendance of distinguished dentists from the neighboring states to attend and operate at these clinics. The state dental boards should make it as easy as possible for us to attend these clinics and exchange methods and views by giving us a law exempting any one participating in a clinic from a penalty for practicing without a license.

As our worthy editor says, the methods of procedure in eliminating oral cavity troubles are practically the same in one part of the United States as in another, and I am heartily in favor of a liberal interstate dental registration law. A practitioner that is eligible to practice in one state should be eligible to practice in any state without being required to submit to an examination; if he is not eligible he should not be allowed to practice in any state. Some state dental boards exchange certificates with only certain other state boards. Now, if this dog in the manger law isn't unfair and unprofessional, I don't know what is.

A student holding a diploma from a dental college which belongs to the National Association of Dental Faculties should not be required to pass a state board examination, as this is a reflection upon this creditable association. Whenever it is necessary to hold an examination for the admission to our ranks of those persons not holding such a diploma, it would be a good thing if all state dental boards of examiners held their examinations at the same time, using the same list of questions; then no one could question the eligibility of anyone passing the examination to practice anywhere he chose.

The state dental board should be required to keep a record of the location of every dentist licensed to practice in the state. If the practitioner moves to another state, the state board should issue him a certificate of good standing to the state board of the state into which he moves. The board should be allowed to charge a fee for recording changes of location in the state and for issuing a certificate of good standing.

When a dentist dies the county health officer should notify the secretary of the state dental board. This would enable the secretary to tell at any time where the holder of a certificate is practicing and how many are practicing. As it is now the secretary cannot tell whether a certain dentist is in a certain town in the state or out of the state. Of what benefit a dental law is that requires a dentist to register his certificate with the county auditor, as in some states, is more than I can tell.

It might be a good thing if all the states had a proviso in the certificates issued by the state dental boards to the effect that any practitioner advertising other than his name and address should lose his certificate or be subject to a fine by the state board. In time

quackery would disappear from our midst and our profession would advance rapidly in self-respect.

If the above article is worth printing do so, otherwise please return.

Yours truly,

Belle Plaine, Kansas.

F. EMLEY.

---

The following is from a dentist who had the experience:

*Dear Doctor Cigrand:*

In your issue of THE AMERICAN DENTAL JOURNAL of November you have treated very ably a subject that I have been giving a great deal of thought the last two years. The present condition of the state control of the license, to me, is an unjust condition of affairs.

In the year of 1906 I took the state board examination in North Dakota and was impressed with the fact that the recent graduate from a dental college was rather seriously handicapped in being compelled to take an examination at the hands of some men who had been out of school a long time and to some extent were greatly in need of a little postgraduate work if their ideas were to be compared to those we were taught in school.

Then, too, the idea that a person considered proficient enough in the profession to practice dentistry for the people of Illinois was not considered good enough to do the work for the people of North Dakota seemed strange.

We are about to TRY to make some changes in our dental law to make it what it should be as near as is possible under the conditions. Thank you.

DR. W. E. HOCKING.

Devils Lake, N. D., November 16, 1910.

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*Dear Doctor Cigrand:*

I fully agree with you in the spirit of your plea for better dental laws and also believe that you are, like many others that have advocated the same thing, i. e., making it easier for a dentist to move from one state to another and practice there. I have had some experience, having moved from Indiana to New York.

But what I want to particularly call your attention to at this

time is that Dr. Blank did not break any law or was in no wise liable to arrest at Denver, nor is any *clinician* anywhere.

A man must "practice for a fee" to be without the law. So I see no need for granting a "special license to clinicians"—or that "it would be a step in the right direction of according dental practitioners the right to practice in other states."

The argument is not sound, but let us go right ahead with the good work and not bother about "a license for a FREE clinic." There are many with you, among them yours fraternally,

W. A. HECKARD,

489 Fifth avenue, New York City, N. Y., November 22, 1910.

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Here are some sparks from a live wire:

*Dear Dr. Cigrand, Editor:*

Have just finished reading your editorial on the illegality of clinics as now conducted by the various dental societies and organizations, and I cannot too warmly commend the stand you have taken and the ideas you have advanced, but great bodies move slowly and I dare say we will be much older before we see any change toward an improvement in what is at present a very poor arrangement, and I wish to call your attention to at least one of the things that will operate against a change, for it is the things that work against it that we must finally overcome.

What Dr. Cigrand says about the practice of dentistry being the same in all states is quite true, and the writer is most heartily in favor of the interchange of license, but with a very strict recall clause attached, so that the ne'er-do-well faker and the crook can be kept where he is best known and can do the least harm and not be allowed to prey on unsuspecting communities and wander from one state to another, bringing discredit and reproach to the profession.

Who is it that blocks the way to a broad construction of the word dentist? inquires Dr. Cigrand. Here is one answer, and I will detail the case as it came under my observation:

Early in this year there came a dentist to this city from a neighboring city. To see him was to realize that it was not lack of health that brought him, as is the case with many dentists here and in the surrounding country, so I wrote to his former city to inquire about the newcomer and to learn, if possible, the cause of his change. The

information that I received was to the effect that he left under a cloud. He is still here and almost daily I hear of the crooked work that he has done or attempted to do, so it's only a matter of time until he will be looking for another location. In the meantime he has defied the state board of dental examiners, refused to take their examination, insulted and derided them and continues to practice without being licensed and registered as the state law requires. Should this man and his like be given the privilege of traveling from state to state to rob and beat unsuspecting patients and merchants, to say nothing of the disgrace they bring on the profession? I am sure you will quite agree with me when I say most assuredly no.

As for arresting distinguished clinicians who come to Texas, they never need be afraid of the Texas Board of Dental Examiners, for I have notified the secretary that there were unlicensed men here in the practice of dentistry, but they have never taken any action and the outlaws are still doing business. I notified the secretary six months ago.

Honest, honorable men are welcomed in all civilized communities, and the man engaged in the practice of dentistry should be no exception, but California does not want the cast-off crooks from Texas and Texas does not want the bigamist and malpractitioners and dead beats from the other states. Even though we are what some writer has styled "the outpost of civilization," the law should apply here the same as it does in Dallas and Houston. Until this element in the profession is weeded out, throttled and completely exterminated, there will be but small chance for a general exchange of license, unless, as I suggested, it carries a very strict recall clause to cover such cases as I have detailed and others that from time to time arise.

The honest, honorable dentists are generally satisfied and contented with their locations, especially after a residence of ten years or more, and do not often wish to make a change unless they are unfortunate enough to lose their health or some of their dear ones are overtaken with this same misfortune, thus compelling a change of location. These unfortunate men should be afforded every facility and privilege of changing their location, not once, but a dozen times if necessary, and personally I say "hail and welcome" to such men;

they can only do good and uplift the profession and the standard of the profession in the communities where they reside.

P. S. You are at liberty to use any of the statements herein contained over my name.

Very sincerely yours,

HARRY BLOOMSTEIN, D. D. S.,

El Paso, Texas, November 15, 1910.

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The following from the pen of Dr. W. J. Taylor of Sacramento, California, will be good reading:

Our dental laws should be universal, thus allowing a practitioner to remove from one locality to another without the necessity of undergoing an examination. To accomplish this colleges should all adopt the same standard and requirements for graduation, and when a diploma is granted it should be honored and permit its owner to practice anywhere in America. National legislation may be necessary to bring about such a change, but it is sure to come, as the present system is the offspring of corruption and fraud and is totally devoid of justice and reason. However the change may be brought about, I am sure it is a step in the right direction.

W. J. TAYLOR.

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Here are a few sentences from a qualified educated, practitioner of some twenty-five years of legal practice:

*Hon. Bernard J. Cigrand, B. S., D. D. S.*

DEAR DOCTOR: Commenting on your editorial in the recent issue of THE AMERICAN DENTAL JOURNAL, I am very much struck with the forceful and lucid manner in which you have brought to the notice of the profession the various discrepancies in state requirements through which our dental operators are often placed in annoying situations. The profession at large owes you a debt of gratitude for the manner in which you have raised your voice in protest against a system of regulating the practicing of dentistry that is no system and comes nearer being a farce.

A profession such as ours, standing as it does in the first rank among the learned arts, deserves more thorough and careful consideration from state and federal authorities than it has obtained. It is my belief that a man who is deemed capable of practicing this profession in our state should be considered equally qualified

to do the same in other states, for wherein do the people of one state differ from those of another, and wherein are the people of one state any worse or any better than of other states that laws should be made discriminating against dentists practicing upon this people? It is all a farce! The regulation of the practice of dentistry is not a local question, but a national issue, and if our constitution is such as to make national legislation along this line illegal, then it is time that the governing boards of the various states combined to make their respective laws uniform so as to give them a national character. It would lend more dignity to the profession and would raise it in the eyes of the public, if such a move could be made, and it is my earnest hope that you, dear sir, will continue in the fight for uniform legislation by voicing the protest of the profession individually and at large against the ridiculous discrepancies and variation that now exist in various states.

Very respectfully yours,

E. KARGAU, B. S., D. D. S.,

Chicago, November 21, 1910.

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If any reader of THE AMERICAN DENTAL JOURNAL has ideas on this problem, or can suggest a reasonable solution, let the communication come to the editor. We need your co-operation and advice.

# SPECIAL CONTRIBUTIONS.

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## A BALLAD OF THE DOLLAR.

---

With cautious step as you pass up and down  
This intricate world as other folks do,  
Would you have it said, "He did it up brown"?  
Then don't be afraid of a dollar or two.  
'Tis a friend that will always see you safe through,  
No matter whether in country or town;  
If you can't chink some coin you're down and out, too,  
And greeted at best with an ominous frown.

Would you make for yourself a name of renown?  
Then read yourself out of the bachelor crew.  
You need not fear of being "turned down"  
Should you for the hand of a maiden sue.  
Provided you're ready the handsome to do  
By the female divine in a half-hobbled gown.  
(Love's arrows are tipped with a dollar or two);  
Take a hunch from me and escape her frown.

Would you like in a sea of her love to half drown,  
With your manly worth her faith to imbue;  
Love's throne to place on your head a rich crown,  
To her, *the* one of the sanctified few,  
To enjoy a good name and a well cushioned pew?  
Then beware, lest instead an—*adjectived* noun!  
Unless you come down with a dollar or two,  
You'll merit this sobriquet—"Stingy old clown."

### L'ENVOI.

If you really want to "do it up brown,"  
Take this, if you will; it's my point of view:  
Whether maid from the country or hustling town,  
Affection is gained by a dollar or two.

—J. D. ROBERTSON, D. D. S.



## LOGICAL REASONS WHY MICRO-ORGANIC THEORIES OF DENTAL CARIES ARE MICROBIC ERRORS.

BY J. OXFORD KELLER, D. D. S.

Dental literature has long been infested with the theory that lactic acid is the sole or main cause of tooth decomposition.

The writer's memory goes back some thirty to forty years or more in recollection of having read in dental magazines that teeth are rotted by this acrid agency. The theory was not at first associated with micro-organic life as a means of producing this acid of disintegration. It was not until some years later that Pasteur, about 1885, announced to the world that lactic acid was a micro-organic fermentative product. Since that time lactic acid as an end product has been ascribed as a sole cause of caries by many able scholars in dental science.

The leading advocates of the microbic lactic acid theory of caries have been Miller, Black, Kirk, J. Leon Williams of London, England, Brown, Regnard, Magstot and others. These writers do not say that microbic life is a direct cause of rot, that they eat holes in the enamel and disintegrate by any knowing or mechanical agency, but that they lodge in least accessible places around and on the teeth, in their dents, depressions, fissures, pits and culture in salivary plaques and in the salivary body, form and excrete, lactic acid. This acid, they say, decomposes the lime salts of enamel and dentine and causes caries.

The writer of this paper disagrees with these gentlemen and ascribes caries to three distinct classes of chemical agencies, as aforegiven, in this series of papers. He verifies the proposition that all human saliva contains within itself chemical agencies, from which result the malady in question. The following are the physical and chemical reasons for said disagreement, founded on the necessary processes of reasoning from cause to effect, from a part to the whole to which it belongs. That which affects a part is liable, for same reasons, to affect the whole. What is true of a part may by analogy be affirmed of the whole to which it belongs.

Keller ascribes caries causes to three distinct classes or decomposing agencies. Some of them are present in all human salivas. He has made the salivary salts by chemical process and with them has

produced all of the different physical and chemical decay characteristics found in rotten teeth. These circumstances alone are strong logical evidences in favor of the proposition that all human salivas contain the elements of decay.

The micro-organic decay theorists advocate a lone lactic acid agency. They have been urgently requested by the writer to do and write some original classified research in advocacy of it, but have not. A formulation of Miller's micro-organic theory gives the following two distinct propositions for advocacy:

**PROPOSITION 1.** That micro-organic lactic acid fermentation does not obtain in the mouth in sufficient quantity, strength and time, to decompose tooth structure. The leading advocates of the microbic theory of decay have never even attempted to show that said acid is produced in such quantities in the mouth as to effect chemical decomposition in human teeth.

**PROPOSITION 2.** That all of the different physical and chemical characteristics of decay processes can be produced by single lactic acid agency.

The leading advocates of the microbic acid theory ascribes caries causes to lactic acid, formed within micro-organism which grow in the mouth and around the teeth. They say that these microbes excrete lactic acid strong enough to disintegrate the lime salts of enamel and dentine. They are called the streptococcus and staphylococcus, and are very small, about one twenty-five thousandths of an inch, average dimension. They grow in colonies in the saliva, around and in fluid media or salivary plaques. At size above given a cubic inch space would contain exactly fifteen trillions six hundred billions of them (15,625,000,000,000). More than twenty-five billions of them would move freely and float in a drop of water and occupy less than half its capacity. A diminutive globule of water, the smallest that would hold on the point of a needle and barely visible to the naked eye, would contain over fifty millions of these microbic scavengers. Bacteria so small can barely be seen under the lens of the highest power microscope. It is these diminutive bacterial growths in colonies which, the microbic decay theorists say, form and excrete the lactic acid, which rots the teeth.

## LOGICAL REASONS AGAINST LONE LACTIC ACIDS DECAY.

FIRST. Lactic acid, claimed by Miller, Black and Kirk to be the sole cause of decay, would in sufficient strength, but does not cause such decay because it never obtains free and uncombined, neither by systemic process, nor from local conditions in sufficient strength to destroy tooth bone. The advocates of the lactic acid theory have never even attempted to show that this acid forms in the mouth in sufficient strength to produce carious decomposition. Miller in his book on micro-organic life in the human mouth never finds more than a trace of lactic acid in the salivary secretions. In all of his 230 pages discussing oral micro-organic products he never attempts to mention any percentage formation of lactic acid in human saliva. Even in his culture processes, made for the special purpose of producing lactic acid bacteria and lactic acid, he finds a very small percentage of lactic acid, a mere trace. In his work on micro-organisms, edition 1890, page 20, last paragraph, concluding on page 21, he says as follows:

"It is usually assumed that lactic fermentation must always be accompanied by a development of carbonic acid. \* \* \* In order to arrive at a positive conclusion in regard to this point I undertook an experiment in a large glass vessel with one liter of beef extract-sugar solution which I inoculated with a small piece of carious dentin. \* \* \* The vessel was placed in an incubator. \* \* \* No bubbles of gas were seen to be ascending through the solution nor to have accumulated on its surface, infrequently the case in such cultures. \* \* \* I then heated the vessel in order to drive out any carbonic acid possibly formed. Through lime water it still remained clear. I repeated this experiment with an apparatus for connecting gas over mercury. In a culture in which one and three-fourths (1.75) grams of lactic acid was produced, only a little bubble of gas was collected."

\* \* \*

The above culture experiment was made by W. D. Miller, an American dentist at work with Dr. Koch in Berlin, in the latter's bacteriological laboratory. It was for the purpose of showing the formation of lactic acid by bacterial fermentative process. He used one liter of beef-sugar extract solution. The unit of capacity of the liter is 33.8 fluid ounces. Such a solution has a specific gravity of

1.25. This would give a total weight of 33.8 fluid ounces or about 20,280 grains of beef extract solution.

Lactic acid has a specific gravity of 1.625. The one and three-fourths grams of lactic acid which he obtained in the 20,280 grains of beef extract solution would be about 27 grains. Twenty-seven grains of lactic acid would equal about 20 drops, and about 1/800 of 20,280; hence it can be seen that Miller in his micro-organic culture process, for the sole purpose of producing lactic acid by parasitic fermentation, gets only about 1/800 part of lactic acid. This is little more than a trace and a quantity so small that a human tooth placed in a quarter pint of such a lactic acid solution would not decay in a thousand years. It is claimed, however, by the lactic acid theorists that said acid, by fermentative process, obtains in the mouth in sufficient strength as to destroy the enamel and dentin.

SECOND. Quantities of vegetable matter and carbohydrate material do not remain in the mouth, around the teeth, between them, or in their cavities, nor during sufficient time for lactic acid fermentation to produce an acid either in the microbes, around them, or by them, to cause caries. It is certain that less than 60 grains, one-eighth Troy ounce of food, would remain in the mouth during and between the masticatory process of several meals. Three to six days are required for full lactic acid fermentation. In a semi-plastic media, it is said that colonies of micro-organisms do not occupy as much as 1/100 of the body of the media. This would cause the microbes to occupy a space less than one-half grain of the culture media. Sixty grains of the most favorable carbohydrate food for lactic acid fermentation would produce less than one-eighth grain lactic acid. If the acid is formed by the microbes, which occupy 1/100 space of the media, and they excrete three-fourths of one per cent solution of lactic acid, then the micro-organisms found in 60 grains of culture media would excrete less than one-third of a grain of lactic acid. This quantity would have so little effect on any part of enamel or dentin as not to be seen under the lens of the highest power microscope.

If, instead of using one liter of beef-sugar extract solution Miller had used 60 grains of said solution, a larger quantity than could possibly remain in the mouth during the masticatory process of several meals, instead of obtaining 1.75 gram (about 27 grains), he would

have determined as follows: If, in 33.8 fluid ounces of beef-sugar extract solution (20,280 grains in all), Miller gets 27 grains of lactic acid, in 60 grains of carbohydrate or other food product in the mouth, he would get about  $1/336$  of 27 grains, or about one-twelfth of a grain of lactic acid. This quantity of lactic acid, one-twelfth of a grain, would have to obtain from 60 grains of fermentative product remaining in the mouth during and between the masticatory process of several meals. According to Miller's own experiments in micro-organic processes for developing lactic acid, it would be utterly impossible to obtain enough of the acid to produce any effect whatever which could be detected by any chemical or microscopic research. Human saliva, most always alkaline in character, would neutralize daily more lactic acid than results in a whole quart of Miller's test solution, which must first take place before lactic acid decomposition could result.

THIRD. Lactic acid produces but one kind of decay; that is a white, snow-like color composition of lime salts, hence lime whiteness. Whereas, neutral salt and neutral salt-acid and neutral salt-alkaline decays will produce all of the different kinds of physical and chemical characteristics found in caries. Physical and chemical experiments show that the several physical conditions will result from the chemical action of neutral salts, acids and alkalies accordingly. This is sound logic and very strong evidence against the theory of lactic acid as the sole cause of decay. Black's Operative Dentistry, volume 1, page 65, first three lines of last paragraph, says: "Caries in its simplest expression consists in a chemical dissolution of the calcium salts of the tooth by lactic acid." He makes this statement in disregard of the several classes of decay which are known to take place in the mouth, such as the acid or white decay, the alkaline or dark grayish-brown or ash-like or the neutral salt decay with its semi-translucent or dead-like color, frequently with unbroken organic matrix. Calcium phosphate and carbonate structures decomposed by the ordinary mineral or vegetable acids always result in snow-white products Alkaline decomposition gives an ash or gray-grown color. These physical characteristics are very strong evidences against the theory that lactic acid is the sole cause of tooth rot and sufficient to completely overthrow the micro-organic theory of tooth decomposition.

FOURTH. It is good reason and sound logic that any vegetable

or mineral acid, alone, free and uncombined in aqueous solution, strong enough to decompose the teeth, the hardest substances in the body, with enamel so compact as to quickly dull the edge of the sharpest and best tool steel, would be instantly germicidal to any known micro-organic life.

FIFTH. Quantities of animal and vegetable matter do not remain in the mouth, around the teeth, between them, or in their cavities, nor during sufficient time for lactic acid fermentation to produce an acid, either in the microbes, or around them, or by them, to cause caries. It is certain that less than 60 grains, one-eighth Troy ounce of food, would remain in the mouth during and between the masticatory process of several meals. Three to six days are required for full lactic acid fermentation. In semi-plastic media it is said that colonies of microbes do not occupy as much as 1/100 of the space of said media. This would cause the microbes to occupy a space equal to less than one-half grain of the media. Sixty grains of the most favorable food for lactic acid fermentation would produce less than one-eighth grain of lactic acid. If the acid is formed by the microbes, which occupy 1/100 space of the media, and they excrete a 3 per cent solution of lactic acid, then the microbes found in 60 grains of culture media would excrete 1/10,000 of a grain of lactic acid. This quantity would have so little effect upon any part of the tooth substance as not to be seen under the lens of the highest power microscope. If the micro-organisms should develop so as to occupy the entire body of the media in which they form, they could not throw off or develop within themselves more than one-tenth grain of lactic acid, a quantity insufficient to produce dental caries.

SIXTH. Lactic acid is a liquid organic acid, composed of not less than 75 per cent by weight of absolute lactic acid and 25 per cent water ( $\text{CH}_3$ ,  $\text{CBOH}$ ,  $\text{COH}$ ).

PROPERTIES. Lactic acid in concentrated form is an active caustic. When diluted, say one-half to three per cent, it is stimulant and germicidal. The 50 to 80 per cent solution has been used as a caustic in infected wounds. The 20 per cent solution has been used for the destruction of false membrane in diphtheria. The 3 per cent solution is recommended to irrigate and germicide foul, excretory tracts. Dose: 20 minims (see U. S. Dispensatory, Lactic Acid).

From the foregoing it is logically certain that micro-organic life

cannot excrete enough lactic acid to dissolve the lime salts of tooth bone, even if ounces of food could remain in the mouth during a period of three to six days. It is also certain that they could not ferment enough lactic acid, or any other acid, in sufficient quantity and strength to cause caries.

SEVENTH. The limit of the microbic growth in lactic acid is between one-fifth to one-half of one per cent. Any higher per cent of lactic acid is germicidal. See pasteur,—Lactic Acid Fermentation, U. S. D.

This later reason alone is sufficient to completely overthrow the micro-organic theory of caries.

EIGHTH—BAD LOGIC. The outside glossy surface of tooth enamel is the hardest part of it, and has more physical and chemical resistance than the underlying enamel and dentin. It has the hardest of any sectional resistance in the whole economy. One author says that other acids may eat holes or pits in this outside surface which give lodgment to micro-organic cultures, which in time develop or throw off lactic acid. This microbic acid then eats the holes clear through the enamel, thereby permitting its access to the more cellular and organic dentin underneath, resulting in more rapid decay.

The foregoing statement is bad logic, for the reason that an acid strong enough to etch or roughen the outside enamel surface and eat holes and pits in it would be strong enough to continue and eat holes clear through and into the dentin itself. The microbic cultures and the acids which they excrete would not be necessary agencies to continue the work of decay through the enamel and into the dentin.

LACTIC ACID MICROBES. Lactic acid may be a medium in which micro-organic cultures take place. Pasteur says that lactic acid fermentation may develop bacteria in same after several days, like bacteria in the after-product, mother of vinegar. The limit of lactic acid strength in which microbic life can exist is less than one-half of one per cent. (See Lactic Acid Fermentation, U. S. D.)

If micro-organic life forms lactic acid they must excrete it, otherwise they must be a product of lactic acid fermentation. It is probable that microbes do not form lactic acid within themselves, but rather that they produce lactic acid by presence or induced fermentation; hence that they may be productive of ferments rather than fermented products. Neither the microbe nor the acid which it

excretes or in which it is a development, reasons aforegiven, can cause decay.

NINTH. The ninth reason why micro-organic life is not the cause of caries is that decay often begins in localities where cultures of microbes could not possibly remain long enough to effect such a result. The dents or depression in the central section of the buccal surfaces of the first inferior molars are places where decay frequently begins. Eroded areas on labial surfaces are others. Little or no food can remain in said locations during the masticatory process of several meals. Dr. Black says that decay is caused by lactic acid, excreted by microbic cultures, which decompose the lime salts of the teeth. As lactic acid and fermentation requires from three to six days, it is contrary to good reason and sound logic that enough of any kind of food could remain on the buccal surfaces of said molars or under their gums, long enough and in sufficient quantities to produce an acid (three to six days) which would rot any part of said tooth.

Another frequent location of decay is in the grinding surfaces of all the molars. If lactic acid is an excretory product of microbic life, and said decays are caused by said acid, then the food in which such fermentative process takes place would have to remain on and in the grinding surfaces of said molars from three to six days. It is neither possible nor practicable that enough of said food could remain in such locations long enough to produce such results.

There are some locations on the teeth which are liable to decay on which microbic cultures would find difficulty of lodgment even between meals and more so during a period of three to six days during and between the grinding processes of many meals.

TENTH. Neither the oldest nor the latest physiological chemists find even a trace of lactic acid in the human saliva as is shown by a careful inspection of the formulas which they have given to the world as the result of their analytical work. The fact that no lactic acid nor even a trace of it, nor even any lactate salts in their published formulas, gives very strong and positive evidence against lactic acid tooth decomposition. The following works in physiology have been consulted:

Chapman's Human Physiology, edition 1887, page 118, gives human saliva formula containing potassium, sulpho-cyanid with phosphate, carbonate and chloride salts, but gives neither lactic acid nor



lactate salts. His composition of human blood gives 23 salts, acids and alkalies, not mentioning lactic acid nor its lactates.

Kirk's *Hand Book of Human Physiology* gives saliva formula, page 310, but does not mention lactic acid nor lactate salts. Same of blood, pages 116 and 117, edition 1909.

Harris' *Principles and Practice of Dentistry*, one of the oldest and ablest in operative dentistry, revised edition, 1890, page 88, gives composition of saliva about the same as other authors, with soda, lime and magnesium phosphate salts with chlorides, but mentions neither lactic acid nor lactate salts.

Austin Flint's *Human Physiology*, edition 1895, page 200, gives composition of human saliva with potassium, sodium, calcium, magnesium salts and chlorides, but fails to give even a trace of lactic acid or lactic acid salts.

Miller's *Micro-Organisms of the Human Mouth*, page 34, paragraph 1, says as follows, without even giving a trace of lactic acid or lactate salts in the human saliva:

"The inorganic ingredients (salts) contained in human saliva are, besides chloride of potassium and chloride of sodium, combinations of carbonic and phosphoric acids, with calcium, potassium, sodium and magnesium, calcium and sodium carbonates prepondering."

Miller's *Micro-Organisms of the Human Mouth*, edition 1890, gives chemical ingredients of human saliva by Smith and Jacobowitsch, page 38, but mentions neither lactic acid nor its salts. The formula is as follows:

Even the strategic Black, a strong advocate of Miller's microbic theories, fails to get even a trace of lactic acid or lactate salts in his formula of human saliva. Black's *Operative Dentistry*, volume 1, page 133, gives the following composition, copied in full. It is as follows:

Formula—

Water .....	99.203
Mucin .....	2.202
Ptyalin .....	1.390
Fixed constituents.....	5.790
Carbonates, phosphates, chlorids, sulphates, nitrates.....	2.205

But some of these advocates of Miller's micro-organic theory of decay have attempted to show that lactic acid develops under salivary plaques and molecular-like eats into the enamel and dentin and slowly and gradually breaks down tooth structure, somewhat like the old saying that "It is the constant drop that wears away the rock," or "The constant dripping that wears away the stone."

But these theorists must not forget that they have advocated that lactic acid may be everywhere in the human saliva. Some call it the omnipresent lactic acid. Kirk, the able editor of the *Cosmos*, gets lactic acid both in the body of the saliva and in the bacterial plaque. July, 1910, *Cosmos*, page 735, last paragraph, says as follows:

"Assuming, then, lactic acid bacterium temporarily fallen upon a protected area of tooth structure in a culture medium capable of supporting its vital activity and containing besides glucose a certain amount of mucin—all of which conditions are to be found in the saliva of the ordinary caries susceptible—fermentation of the glucose is at once set up, each molecule of the sugar being split up into two molecules of lactic acid which is shed out into the surrounding medium, causing an immediate precipitation of mucin about the bacterial growth, which adheres to the tooth surface by virtue of the precipitated mucin acting as the binding material of the agglutinated mass."

The foregoing quotation shows that Dr. Kirk advocates that lactic acid gets into the salivary body, for he says that one molecule of sugar being split up into two molecules of lactic acid is shed into the surrounding medium, said lactic acid causing the precipitation of the mucin. He also gets the lactic acid development in and under the bacterial plaque.

Dr. G. V. I. Brown of New York, in discussing Dr. Kirk's paper on caries, July, 1910, *Cosmos*, gets the lactic acid both in the salivary body and in the salivary plaque. He says as follows:

"This Dr. Kirk seems to have given us when he explains for the first time the possibility of mucin precipitated by the omnipresent lactic acid serving to bind the lactic acid, producing bacteria in an agglutinated mass against the tooth surface."

The writer would say, however, that in accordance with good reason and sound logic, any body of saliva impregnated with enough lactic acid to precipitate its mucin would make the teeth liable to

attack by the lactic acid distributed throughout said saliva regardless of precipitation. According to this writer, he gets the lactic acid both in the salivary body and in and under the salivary plaque. He makes lactic acid in the saliva itself necessary to precipitate an agglutinated mass under which and in which cultures of bacteria develop and excrete lactic acid, which destroys the enamel and dentin of tooth structure. According to this theory lactic acid is necessary to precipitate and form the plaque in and under which the lactic acid bacteria must be cultured to excrete more lactic acid for tooth decomposition.

Dr. G. V. Black in his *Operative Dentistry*, Vol. 1, devoting over one hundred pages to discussing caries and caries causes, also gets lactic acid both in the salivary body and in and under the salivary plaques or agglutinated masses of mucin.

ELEVENTH. Human saliva has most generally alkaline characteristics and decay is most apt to proceed in such mouths. Dr. Kirk in his paper, July, 1910, *Cosmos*, page 734, Column 1, says:

"My own observation of many cases as they are examined at our college clinic leads me to the conclusion that the most active expression of caries is to be found in mouths having an alkaline and highly mucoid saliva, and that such saliva is characteristic of the starch and sugar eater. We rarely find active caries in mouths having a thin, limpid, acid saliva."

The above quotation shows that Dr. Kirk, same as Black and Miller, admits that saliva is most generally alkaline in characteristics and that decay is most apt to proceed in mouths having strong alkalinity.

TWELFTH. But, according to a universal law in chemistry, that before lactic acid decay can proceed in the mouth, either from free lactic acid in the general salivary body or in and under the plaques, there must be produced enough lactic acid to first neutralize the alkaline saliva. This neutralization would obtain mostly in the form of potassium lactate, for the reason that lactic acid has a higher affinity for most of the potassium salts than the potassium in said salts has for the acids with which they are in combination. Potassium carbonate and potassium chloride, being generally prevalent, the lactic acid would combine with the potassium in said salts, liberating the carbonic acid and chlorine, thereby forming lactate of potassium. After the potassium and other salts of the saliva in the mouth have

been neutralized by lactic acid, then there must be an excess of lactic acid in free aqueous solution in order to produce lactic acid carious decomposition. Any decay which might be produced by the lactate salts in chemical equivalence would be classed under the head of Keller's Neutral Salt Decay. Any decay which might result from the presence of lactate salts with excess alkalinity would indicate Keller's Neutral Salt-Alkaline Decay.

Lactic acid is readily neutralized in human saliva. Evidences of chemical reaction can be observed by pouring a one-fourth ounce of full strength lactic acid in four fluid ounces of fresh human saliva. The action of the acid can be seen by the bubbles of escaping carbonic acid gas. In very strong alkaline saliva the chemical reaction may be so active as to produce a slight effervescence.

The saliva flows through the mouth at the rate of about one quart every twenty-four hours, during and between the masticatory processes of several meals. Before lactic acid decay could result in human teeth, enough lactic acid must be formed and excreted by the streptococcus germ to first neutralize one quart of human saliva. After said neutralization there must be enough excess lactic acidity in sufficient time and strength as to act upon enamel and dentin in order to produce lactic acid decay.

**THIRTEENTH.** The name lactic acid bacterium has been given to a bacillus first cultivated by Hueppe from sour milk. There are other lactic acid bacterium, but Hueppe's is by far the most frequent cause of spontaneous lactic acid fermentation. Sour milk and buttermilk are strongly impregnated with lactic acids and are known and recommended by physicians as health drinks because of their acidity. Buttermilk has been considered as a most healthy beverage, especially during the warm season, and it is certain that buttermilk is as strong in lactic acid as would be human saliva under the most favorable conditions for lactic acid fermentation, yet buttermilk has never been known to rot the teeth. On the contrary, by neutralizing the alkalinity of the saliva and of the fluids of the body in general would prevent rather than cause decay. No leverage is more certain to neutralize a mucoid and highly alkaline saliva, a saliva that indicates most active decay, than acid beverages or sour buttermilk, yet buttermilk has never been guilty of being charged with rotting human teeth.

**THE RESTORATION OF A BADLY DECAYED MOLAR BY  
MEANS OF THE GOLD CROWN.**

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BY GEORGE B. HARRIS, B. S., D. D. S.

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The case presented was an upper first molar. No part of the crown remained. The canals had been filled previously. The following procedure was successfully resorted to to restore the crown by means of the gold crown:

A gold band was first fitted around the root and cemented in place to make it possible to use the rubber dam. All decay was then removed and the tooth dried with alcohol.

The canals were then opened up and enlarged sufficiently to permit the placing of thirty gauge platinum posts in the two buccal canals and twenty-eight gauge in the lingual canal. These were cemented in place and allowed forty-five minutes to set. The posts were permitted to stick up far enough to afford a good attachment. The band was then covered with temporary stopping and the patient dismissed.

At the next sitting the dam was again adjusted and a second gold tooth, fitting closely on all sides. The inner band should be slightly band placed inside the one previously placed, so that it rested on the lower than the one cemented in place, so that it may be sealed in. The inner band was then filled up with amalgam and the amalgam and outer band covered with cement. This was allowed to remain three or four days to permit the amalgam to become perfectly hard. The outer band was then removed and the cement around the inner band carefully removed. A gold crown was then swedged and placed over the inner band in the usual way.

**THE MOUTH—HEALTH AND MORALS OF SCHOOL CHILDREN.**

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BY W. A. EVANS, M. D., CHICAGO, ILL.

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(Commissioner of Health.)

(The following is a digest and summary of various addresses delivered by Dr. W. A. Evans, and arranged to suit his pleasure.—Editor.)

What is the importance of teeth to the community? There are three aspects of the question. The first of these is the importance of nutrition to the individual. Perhaps some of you have heard of the negro who was teaching his mule to get along without eating. He succeeded, but just as he had the mule taught so that he could get along without eating the mule died. There is a moral in this. We start out with the infant, and our constant experiences through life are experiences which, viewed to the ultimate, mean and teach of the decreasing importance of food, and therefore much the most important part of the life of an individual is infant life. Why, what is a baby? A baby is practically nothing but a stomach with a material amount of skin and other tissue around it; and see the skin proposition which confronts a baby who begins life weighing ten pounds and is required within a year to increase his weight one hundred per cent. Now let us apply it to an adult. Here is a man who weighs 200 pounds. He has been informed that by March, 1911, he must weigh 400 pounds. He cannot have time to do anything but eat, and it will be hard to do it at that. All his energy and all his thought and all his resources will be concentrated upon one thing—taking in food and converting it into tissue. That is just what a baby is confronted with, and thus it is, that within the first two years of life, the eating side of a baby's life, the intaking of food and the building of that food into energy and physical force and into the beginnings of mental force, are the great kinds of work that that baby finds to do, and during the years of school life this is still on the increase, still of great importance though of decreasing importance. The food of a child—the proper mastication of that food, the proper character of that food, the proper assimilation of that food—is of greater importance than it is at any subsequent period of the individual's life. A child comes into school weighing 50 pounds and, let us say, 4 feet in height. It comes in of an in-

different manly type, and it goes out of that school a man 6 feet in height, weighing 160 pounds, a man in intellect, in scope, in physical and in mental characteristics; and that is the work, that is the change that must be effected in the child during the term of its school years. And so under these circumstances of what overshadowing importance is nutrition in the child during school years. This is, of course, one of and perhaps the most important reason why the thing that must be done well, if the child is to do well, should be done well by means of those instruments that must be perfect if it is to be done well—the teeth.

We, in Chicago, have one hundred school inspectors, each in charge of a certain part of the city and looking after not only the physical examination of the school children but of school children for contagious and communicable diseases and not only looking for contagious and communicable diseases in school children, but looking after contagious and communicable diseases in the section of the city over which they have charge. In addition—these are supplemented, we might say, by the services of forty school nurses, whose functions are several, perhaps the most important of their duties being to see that the instructions given, that the discoveries made by the school inspector, shall be acted upon by those who are the legal authorities in control of the children needing help. As to this particular phase of the subject I shall have more to say presently.

These 100 school inspectors in 1909 examined 647,842 children. The number of school visits made was 59,158. The number of physical examinations made was 123,899. The remainder of the nearly half million school children of the City of Chicago, did not have a physical examination made by the School Board during the year 1909.

Of these 123,899 children examined, 63,199 were found to have physical defects. I trust you will understand that where 100 men are responsible for the physical conditions of half a million people, it is not possible that there should be an ultimate examination, that the best we can expect is that the examination for contagion should be careful enough to prevent a large spreading of contagion and that the physical examination should be deep enough to discover the major defects that exist in the children. It, of course, cannot be denied that the percentage of children that are in some measure defective, is infinitely greater, and these 63,199 children do not represent the sum

total of defective children in this group. It represents the sum total of children with relatively great defects, with defects of relatively great importance.

And now a few of the elements in the analysis of these figures and especially of the conditions that would interest you particularly. Far and away the most frequent defect found was defective teeth, 44,483 children being found with teeth that were radically wrong. In addition to the fact that children with defective teeth were most numerous, there were thousands of others with defects which were closely related to defects of the teeth, and to some of these I shall call your attention and presently I shall show you the relation between defects of teeth and the things concerning which I shall now speak—enlarged glands, 16,945; defects of hearing, 2,830; nasal breathing, 6,524; herpetic tonsilitis, 27,556; adenoids, 4,088.

The nurses did a work that is of just as great consequence as that of the doctors, and yet as it does not particularly concern the subject in hand, I will not specifically refer to it.

There is no country in the world where the death rate is as low as it is in the United States. There is no country in the world where the expenditure for preservation of health is as small as it is in the United States. These are not things that have come about automatically; there are many factors that have worked to bring them about. In the first place, our people are intelligent, prosperous and self-respecting. Our standards of livings are high. Our standards of cleanliness are high. Our standards of right are high. And all of these things make for a low death rate. Our standard of intelligence is high. Our standard of personal control is high. And these make for a low death rate. But probably the factor that has made for a low death rate more than any other is the fact that we are a picked people. Here are found the men and the women that are the cream of all lands of all the earth! The farm boy of Indiana and Ohio has been drawn from the farm to the cities, and in consequence the standard of health in our great centers of civilization, our cities, has been maintained. We have drawn the best of Italy, the best of Poland, the best of Germany, the best of Ireland, the best of every European country; but not only that—our expanse has been great. It has been possible for every man to separate himself from every other man by great expanse of sunlight and air, and the things that man has neglected to



do for himself, God in His goodness, has done for him. But now our country is becoming filled, and no longer is it possible for us to prevent congestion of population. And that health we are to have in the future will be what we earn for ourselves by reason of right living. The drifting that has marked government in the years that are gone must be supplanted in the years to come by community planning, by governmental planning, by civilization planning, and by planning of the individual. It will result that we shall have so much of health, so much of peace and security, of prosperity, of opportunity, as we earn by right living; no less and no more! I believe in a God, but I believe in a God of justice. I believe in a God that gives a man that which he deserves, and the way to have health is by living so that you shall earn or deserve health!

We are confronted in this country by possibilities that are great, and if we properly take advantage of those possibilities it will mean a continuance of national prosperity, but if we do not properly avail ourselves of those opportunities in the large there is no automatic machinery that of itself, and in spite of us, will guarantee continued prosperity and continued opportunity to our land. If we are to have it, we must earn it! There is no way we can have it without earning it.

We have long appreciated the importance of certain orifices of the body in relation to infections. It has been easy to see this relation with regard to certain acute infections; it is more difficult to see it with regard to infections that are more chronic in character. We are coming to understand that the eruption of scarlet fever is secondary, that the important part of scarlet fever is a focus of infection located either in the nose, in the mouth or in the nasal pharynx, and that the poisons are circulating through the body. Thus the poisons are but giving expression to themselves in the eruption that has been held heretofore to be of such consequence.

The importance of diphtheria, I am sure, is fully understood, but the enlargements of the glands of the neck, of the nose, of the tonsils, of the pharynx are not so clearly understood. They are due to absorption somewhere in the nose or within the mouth; *and a very large percentage of those absorptions take place through cavities in the teeth or down the sides of unclean teeth.* Not only that, but we are constantly confronted with instances like this: A child has been in a diphtheria hospital, and has remained there until it seemed safe

for the child to go home. Then the child has gone home, and there has followed an infection with diphtheria in that home. What is the logical explanation? The logical explanation is that in some hidden recess, somewhere in that child, there was a focus of hidden bacteria; and in all human probability a large percentage, if not an overshadowing percentage, of those infections are either in the tooth cavities or somewhere in close connection with the tooth cavities.

We have in the City of Chicago six thousand deaths among babies every year. These are the babies of mothers of foreign birth chiefly, and yet these babies are just as dear to these mothers as are the babies of any other mothers to them. Those babies are sick for months, and after a period of pain and toil they pass away, and that is fearful to contemplate. And probably that is the very cheapest thing for the City of Chicago that could happen to those babies, as heartless as it may seem. An infinitely more expensive thing for our city would be for those babies of poor opportunity, those babies of dwarfed physique, those babies of poor physical development, to go on and become of school age, and then poor, weak, bent children to go into school with scrofula, with enlarged glands, mouth breathers, to come in competition with our children of the school room. What would be the result? The boy, unable to maintain himself in the competition of the school room, would drop back, would play "hookey" just as innocently as you please. The next time he would play "hookey" there would be infused into him with that game of "hookey" a little of the perverted, a little bit more of the denied, and presently into that game of "hookey" there would be infused the element of outspoken crime. And so, little by little, day by day, and year by year, that child, innocent at first, would first go into mental incapacity and then into moral incapacity; and do you believe the community loses its relation to that child? No. The law of the statute book is the law that is placed there by public opinion, and that public opinion is being shaped largely by men and women of improper mental and physical attributes. There is not an ideal law in existence; every law is a compromise between that which we would have and that which we have to put up with; and so into the web and woof of every law, into the web and woof of every administrative act, there is woven the life distorted of this child which didn't have a fair physical chance, and that is part of the work, that

is part of the cost of poorly developed children, that the community is paying. Do you think that the defective that goes into the poor-house has been shunted from your shoulders? Do you think that the man who died out yonder with consumption and has left a family of helpless children to be cared for by philanthropic societies, have been taken from the shoulders of society? Let me say to you that those who are competent are carrying every ounce of burden of those who are incompetent, whatever the character of that incompetence may be!

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### A REPLY.

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By J. P. Root, Kansas City, Mo.

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In the December issue of *THE AMERICAN DENTAL JOURNAL*, there is an article by George B. Harris, entitled "The Reasons Why Our Amalgam Fillings Are Failures." In it he extends a cordial invitation for those who disagree with him to cite their views, so notwithstanding my retiring nature, and dislike of appearing in print, I cannot refrain from defending my old, tried and true friend, Amalgam.

While the writer does not explicitly state amalgam should be a failure, yet he says it is, and the blame is not attached to the material itself, but to the preparations of cavities, but as he states 95 per cent of all amalgam fillings are failures, he must place the blame on the material and not on the operator, for certainly such a large per cent of us are not poor operators.

Faulty cavity preparations and faulty manipulation are not good reasons for condemning any filling material, and if 95 per cent of amalgam fillings are failures, and fail for this cause, then 99 per cent of gold or porcelain restorations would be failures from the same cause, for a service amalgam filling can result where cavity preparation is wrong, providing all decay is removed, when if gold or porcelain was used failure would result. He says:

"Of the hundreds of amalgam fillings I have removed during my investigations along these lines from extracted teeth furnished me by my professional friends, and also fillings removed by myself in the mouth, I have yet to find *one* which did not show decay under the filling."

Probably he was correct, for if decay was not present there would be no occasion for the removal of fillings, but who were those friends who furnished him hundreds of extracted teeth? Why were they extracted? I should judge that they must have come from men whose clientele was not of the best for in this day very few desirable people have teeth extracted possible to save for crowning. And if too far gone to crown, it would be difficult for anyone to diagnose cause of failure, unless the outward appearance of the amalgam fillings was so rotten as to be apparent to a blind man, and if such was the case, why blame the amalgam, for the same results would follow any other material?

Another argument used, was:

"The fillings inserted before the days of the tested alloy were just as good as those inserted today."

He is correct, but proves nothing, for the amalgam made twenty years ago, notwithstanding scientific proof to the contrary, was just as good as today and probably better, for at that time such a thing as "Dollar Amalgam" was not known, and today if you are in the confidence of a dealer who will tell you, you will be surprised at the large percentage of such amalgam sold. And can you blame the honest amalgam for the failure of his dishonest brother; Also twenty years ago "shops" did not abound in every locality where "Silver Fillings" were inserted for twenty-five cents, by a thirty-cent man.

He says:

"Now supposing we have a cavity correctly prepared and all decayed structure removed. Still a filling inserted would not prevent further decay unless the cavity was sterilized. We must make that cavity as sterile as possible if we hope for a successful operation to be the results of our labors. This most important step is to have a perfectly dry cavity. This cannot be brought about without using the rubber dam. It is just as important to have a dry cavity for an amalgam filling as for a gold, and the failure to have a perfectly dry cavity is the way I explain my failure to discover one single instance where decay was not present under the amalgam fillings which I removed from the extracted teeth mentioned above."

A perfectly dry cavity is undoubtedly essential for any filling, and far be it from me to say, that with the modern conveniences of hot air, cotton rolls, clamps, etc., I cannot dry and retain dry a

cavity sufficiently long to insert an amalgam filling, where my forefathers could successfully do so, long enough to build up with gold a large contoured filling. Self respect would refrain me from making such a public confession, and, if I could not perform this simple operation, would learn how, not alone for my own convenience, but for the comfort of my patient, for my opinion is he who uses the damn rubber when not necessary, is a destroyer of human happiness.

"The use of a matrix in inserting amalgam fillings in all mesial and distal cavities is also of very great importance. We do not and cannot restore normal conditions in these instances unless we separate the teeth and use the matrix. Our failure to restore a tooth to its normal condition will defeat our efforts."

I cannot dispute his doctrine of separation and the use of the matrix, for they are as essential for success as wings are for a perfect angel.

My belief is that amalgam (Honest Amalgam), if you eliminate the aesthetic features, is the material none can compare with as a saver of teeth. It is the "Man Behind the Gun," who makes or mars its results, and it is wrong for any one to try to convince themselves it is a failure, for if it was possible to compile true statistics, we probably would find far more failures from every other material used, than from amalgam, providing the man and the gun worked in harmony.

I must admit many failures are due to ignorance regarding how, when and why use amalgam? Also the amalgam scientists, with their theories regarding quick setting amalgam, have tarnished the reputation of this honest product. My experience leads me to believe, it is impossible to insert a perfect (or anyways resembling one), amalgam filling, with the quick setting alloys on the market, unless it be a small crown cavity, where lightning speed could be used.

# EUROPEAN PROGRESS.

CONDUCTED BY THOS. L. LARSENEUR, D. D. S.

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## THE TREATMENT OF TRIGEMINAL NEURALGIA BY INJECTIONS OF ALCOHOL.

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By Alfred W. Campbell, M. D. (*Edinbourg, Sidney.*)

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(*The British Journal of Dental Science*, London, September 1, 1910.)

(*Continued from December.*)

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1a. *Supraorbital nerve.*—To inject the supraorbital nerve, which is the chief branch of the first division of the trigeminal nerve, one proceeds thus: By finger pressure locate the nerve at the supraorbital notch or foramen. Pierce the skin here, but do not inject subcutaneously, penetrate the notch or foramen, and, pointing the needle upwards, push it along the vault of the orbit on the line of the nerve for a distance of 1 centimeter, and there inject from 5 to 10 minims of fluid. The patient should be warned that swelling and ecchymosis of the upper lid will certainly ensue, and probably slight transient ptosis, this in addition to anesthesia of the forehead and scalp.

2. *Second, or supramaxillary division.*—The second division of the trigeminal nerve leaves the skull by the foramen rotundum, and there are two ways of reaching it at this point, one intrabuccal and the other extrabuccal. The intrabuccal route revealed by Ostwalt is the one I prefer. The steps have already been described under the heading First Division, and therefore need not be repeated. The usual dose for injection is 20 minims.

The other route to the outlet of the foramen rotundum is that practiced by Schlosser, Levy and Beaudoin in collaboration, and others.

A straight needle is introduced percutaneously immediately beneath the malar bone, at a point defined as follows: Taking the posterior border of the orbital process of the malar bone as a vertical guiding line, probing it downwards to the lower border of the zygomatic arch, 5 millimeters anterior to this is the site of puncture. The needle, inclined slightly backwards (30 degrees) and upwards (40 degrees), is passed in behind the posterior surface of the superior maxilla, until arrested by the anterior part of the base of the ptery-

goid process, at its junction with the great wing of the sphenoid bone. Then, on gently moving the needle forwards, the point will slip into the sphenomaxillary fossa, and from 5 to 8 millimeters higher the nerve will be struck. The muscles traversed comprise the anterior fibers of the masseter, the tendinous anterior edge of the temporal—though this may be avoided by having the mouth open—and the external pterygoid, and it is well to know that the internal maxillary artery, which usually lies on the external pterygoid muscle, prior to entering the sphenomaxillary fissure may cross the path. It is essential that a marked needle be used, and that it be not inserted further than a certain distance, else the motor nerves of the eyeball may be injured, the optic nerve pierced, or even the brain penetrated. Five centimeters is the average distance from the skin to the foramen rotundum by this route; but, as Harris has pointed out, the distance varies in different individuals, thus, in an adult male, six feet in height, it may be as much as 5.8 centimetres, and as little as 4.5 centimetres in an adult female, five feet in height.

After an injection of the second division of the fifth nerve at the foramen rotundum, there may be anesthesia of the following parts: The skin of the upper lip, the lateral part of the nose and adjacent part of the cheek, the lower eyelid and part of the temple, the upper teeth, the conjunctiva of the lower lid and the mucous membrane of the upper lip, the upper part of the cheek, the upper jaw, the uvula, the tonsil, the naso-pharynx and the nasal part of the nasal cavity. It is common also to produce homolateral myosis, lasting for several weeks, and probably due to irritation of sympathetic nerve filaments proceeding to the ciliary ganglion. Transient oculomotor (third nerve) palsy has been noticed, but was probably the result of a misplaced injection. Sloughing of the mucous membrane in the roof of the mouth has been recorded in one case; the patient, however, was a diabetic subject. Neither ulceration of the cornea nor ophthalmoscopic change has ever been observed.

2a. *Infraorbital nerve*.—This nerve is easy both to locate and inject, but two precautions must be observed.

First, the injection must be made about five millimeters within the infraorbital canal, a step which will prevent injury to twigs of the facial or seventh nerve and subsequent paresis of nasal and upper labial muscles, as a result of subcutaneous diffusion of the alcohol.

Secondly, in pushing the needle along the infraorbital canal, let the point be turned upwards lest the antrum of Highmore instead of the nerve receive the injection. In old persons the root of the antrum may be thin and soft, and it is then that this accident is apt to occur.

The dose for this injection is from 10 to 15 minims, and the patient should be warned that ecchymosis will follow, and perhaps local formication, as well as anesthesia affecting the side of the nose, the adjoining part of the cheek and the upper lip, and lasting for three or four weeks.

2b. *Malar nerve*.—I have never found it necessary to inject this nerve, but if it should be the seat of pain, it could readily be located and treated with a fine needle. The same remark applies to the palatine nerve.

3. *Third or Inferior Maxillary Division*.—This division can be effectively injected as it emerges from the foramen ovale, and may be reached from within the mouth, as Ostwalt has shown, or by skin puncture. Personally, I prefer the intrabuccal route, and the technique is as follows:

Using Ostwalt's straight or bayonet-shaped needle, it matters not which, although the latter is more conveniently held in the mouth, proceed as in injecting, the first division by the intrabuccal route until the angle or cornice formed by the junction of the pterygoid process with the great wing of the sphenoid bone is reached. Then carefully urge the needle backwards along this cornice until resistance in the upper direction ceases, which will be at the anterior and lower margin of the foramen ovale. On pushing the needle two or three millimeters higher, the point should find the center of the nerve. Twenty to forty minims is the dose, and the fluid should be introduced slowly and interruptedly, and by slight movements and turns of the needle one should endeavor to throw jets of alcohol into every fasciculus.

According to a series of measurements I have made, the average distance from the site of puncture to the foramen ovale is 47 millimetres in the male, and 43 millimetres in the female, and it is useful to have these distances marked on the needle.

Having made this injection fifteen times without mishap, I can support Ostwalt's assertion that it is practically free from danger. Only on one occasion did I feel uneasy, a gush of blood on withdraw-



ing the needle making me think I had wounded the internal maxillary artery, but the bleeding proved to be venous, and ceased after pressure had been applied for two or three minutes. In point of fact, the internal maxillary artery normally lies external and anterior to the track of the needle. The internal carotid artery, which may inspire fear, lies well behind.

To reach the foramen ovale without the mouth, the skin is punctured in the center of a small inverted triangle of which the zygomatic process of the temporal bone forms the base, and the condyloid and coronoid processes of the inferior maxilla form the sides. The needle, inclined slightly forwards and upwards, is pushed through the portions of the masseter, temporal and pterygoid muscles until the point first touches the under surface of the wing of the sphenoid bone, and then is arrested by the base of the pterygoid process. It is next urged backwards into the foramen ovale, which lies at a depth of about four centimetres from the surface. In probing for the foramen, this depth of penetration should never be exceeded, because if the needle be driven through the foramen, the cavernous sinus and the internal carotid artery may be pierced, while a misdirected needle passing immediately below the foramen may enter the pharynx.

The route just described, though followed with success by Schlosser, Levy, Beaudoin and Brissaud and Siccard, is not approved by Harris, who advises lower insertion, namely, at the apex or lowest part, instead of the middle of the above-mentioned inverted triangle, and who, instead of making for the pterygoid process, directs the needle upwards towards the base of the skull, and striking under surface of the great wing of the sphenoid bone, at a depth of about 3.2 centimetres, pushes on and directly engages the foramen ovale, at a depth of about 4.5 centimetres. Harris contends that the base of the pterygoid process should be avoided, because the needle may be caught under the pterygo-spinous ligament, which joins the upper part of the posterior border of the pterygoid process to the spine of the sphenoid bone. Not only so, this ligament is sometimes ossified, and may be mistaken for the outer edge of the foramen ovale, with the result that the injection will be made considerably too low.

Yet another way to reach the foramen ovale is to introduce the needle below the malar bone, anterior to the coronoid process of the inferior maxilla, and follow the line already described under Ostwalt's method.

From trials on the cadaver and inspection of skulls, I am of opinion that these three extrabuccal routes to the foramen ovale, that recommended by Harris is the simplest and best, and what he writes concerning the pterygo-spinous ligament is undeniably true. But in support of my previously expressed preference for Ostwalt's intra-buccal route, I may mention that the pterygo-spinous ligament facilitates rather than impedes entrance to the foramen ovale by this route.

A successful injection at the foramen ovale is followed by homolateral hemianesthesia of the lower lip, chin, cheek, lower teeth, gums and tongue, which may persist for many weeks, but will occasion little inconvenience. Also since the inferior maxillary nerve sends motor twigs to the pterygoid, temporal and masseter muscles, some masticatory weakness will inevitably result, but to this under progressive improvement the patient will soon pay little attention. Should much œdema arise in the zygomatic fossa, it will indicate a timidly made injection, which has fallen short of the foramen. Degeneration of the twig to the tensor tympani induce slight deafness and tinnitus.

*3a. Inferior dental nerve.*—To inject the inferior dental nerve at the inferior dental foramen on the inner surface of the lower jaw is very difficult. Brissaud and Sicard have attempted to do so with a curved needle mounted on a hollow handle, inserted behind the ramus of the jaw below the level of the facial nerve, the mouth being open. But even when the subject has been anesthetized they have not always attained their object. Schlosser's experience also has been disappointing. Piercing the skin in front of the mastoid process, with a curved needle, he passed it downwards and forwards behind the posterior border of the ramus of the lower jaw and on into the foramen. Since the facial nerve crosses the line of penetration it is not surprising that facial paralysis overtook three of his cases. Under the circumstances it is fortunate that neuralgia affecting this nerve can be quieted by injection at the foramen ovale.

It may be of interest to dental surgeons to know that in a case of neuralgia, due to a diseased tooth and unrelieved by extraction of that tooth, injection of alcohol in the diploe at the bottom of the socket may prove beneficial.

*3b. Mental nerve.*—In neuralgia affecting the infra-maxillary nerve the mental nerve is usually tender, and the mental foramen from which it emerges is then easily located and will call for the

injection of a few minims of alcohol. This can be done effectively either from within the mouth or percutaneously, care being taken in each case to direct the needle along the axis of the jaw and not to inject until the needle is well within the canal.

#### COMMENTARY.

1. General.—From the details offered in the foregoing paragraphs it will be gathered that at any rate those injections which aim at reaching the roots of the nerve as they emerge from the base of the skull are not easy of accomplishment. The point of the needle requires to be directed with absolute precision to the center of a small structure buried several centimetres beneath the surface. Valuable objects beset the line of penetration and the goal. Should the injection fall a few centimetres short, the patient's neuralgia would not be relieved, and should it overshoot the mark, harmful effects may be superimposed. All of which goes to show that if success is to be obtained it is essential that the operator shall be provided with an intimate knowledge of the anatomy of the parts, in particular of the bone formation, and a knowledge made perfect by practice on the cadaver.

By way of illustrating the need of practice I may mention that Harris, who has written the most recent paper on the subject I have read, confesses to having experimented on as many as 60 cadavers before he felt thoroughly at home in carrying out the treatment. And as demonstrating the fruit of such knowledge and practice I may say that Ostwalt, by injecting melted red tallow, and Harris, by injecting methylene blue, and subsequently dissecting the parts, proved the possibility of throwing an injection precisely into each root of the trigeminal nerve.

2. *Immediate effects of injection in anesthetized subjects.*—The immediate effects of an injection vary in different cases. The pain mechanically caused by the passage of the needle through the soft tissues and the sharp pain which signals the arrival of the needle point within the nerve are, as a rule, trivial in comparison with the suffering induced as the jets of alcohol are thrown in. This is undoubtedly the most trying part of the operation, and the pain is perhaps most intense in cases of injection at the foramen ovale. Fortunately, however, the pain begins to subside as the needle is withdrawn, and half an hour later the patient is usually comfortable, com-

plaining only of a slight burning sensation at the site of the injection and sometimes along the nerve, which passes away in two or three hours' time, and of numbness of the regions supplied by the injected nerve, to which reference has already been made.

I have noticed myself, and I believe it to be the experience of others, that in cases suffering at the time from a neuralgic paroxysm, the first jet of alcohol has sometimes stopped the paroxysm and changed the suffering from an excruciating to a tolerable form. On the other hand, in some cases temporarily free from pain, either the first prick of the nerve, or the first jet of alcohol, has induced a paroxysm, this, however, has been of brief duration, and has ceased before completion of the injection.

*Repetition of injection.*—In some instances a single injection, in the comforting words of one of my patients, "acts like a charm," and affords months of relief, but usually two and sometimes three are required, and in every case of severe neuralgia under treatment for the first time it is a good rule to insist on at least two administrations. Following Ostwalt's practice, I allow an interval of a week between successive injections, first, because this gives time for local swelling and tenderness to subside, and, secondly, because sometimes the good effect of an injection is not felt until several days have passed; presumably, in such cases the nerve has not been accurately struck. Of course, this practice is not adhered to when on account of struggling on the part of the patient, or abnormalities of the bone formation, or for other reasons, one suspects that the needle has not reached the desired point. I may add that although most workers allow an interval of seven days between injections it is not the universal practice, thus, Kiliani supplements this first injection by a second in twenty-four hours' time, another on the third day, and sometimes a fourth a few days later.

4. *Relapses.*—Regarding relapses the general opinion seems to be that they occur in about one-third of all cases, but that the suffering is less than in the original attacks and may be promptly relieved by one or two more injections, to which the patient, mindful of former relief, is ready to submit. Also, the belief is growing that even when relapses occur, ultimate cure is attainable. The method, however, is young, and it is early to pass judgment on this point. Schlosser estimates that the relapses ensue 10.2 months after the original treat-

ment, but Ostwalt gives five months as the average period, and my experience inclines me to accept the smaller figure as the more correct. For example, in one of my cases, in which neuractomy had been previously performed, relapses have occurred at the following intervals: six months, four months, one year, six months; and three other cases have returned once for treatment on account of recurrent twitches of pain, five months, seven months, and eight months, respectively, after the original treatment. I venture to hope, however, that with increasing knowledge of the technique, I shall succeed in lengthening these intervals.

5. *Results.*—Having experience of ten cases only and not knowing the subsequent history of all these, I am unable personally to submit a statement of any value concerning curative effects. I can merely say that in two of my cases only did I fail to give relief, and that I am therefore well satisfied with my trial of the method. In one failure, malaria was a complication; in the other, the abuse for many years of analgesic drugs and the stimulation of tender points led to a diagnosis of neuralgia when a combination of migraine and hysteria would have been more correct.

Seeking elsewhere for evidence as to results, we find that Ostwalt has treated 152 cases with twelve failures; Brissaud and Sicard, sixty-three cases with two failures; Kiliani, fifty-five cases with three failures, and Harris, seventeen cases with one failure. (Schlosser and Levy and Baudouin have also treated a large number of cases with excellent results, but I have not been able to ascertain details.) The figures given speak for themselves; they show that neuralgia may be relieved by injection in approximately 95 per cent of cases, and they will, I think, be accepted as convincing proof of the value of the method.

In conclusion, I would mention that trigeminal neuralgia is not the only condition which may be relieved by the intra or perineural injection of alcohol or other substances. Similar treatment is applicable to painful conditions of nerves in many other parts of the body, especially to sciatica. Not only painful, but irritable states of nerves, such as that condition of the facial or seventh nerve which occasions clonic facial spasm, may be easily and effectively set at rest by this means, but space forbids discussion of the treatment of these conditions in the present paper.

# PRACTICAL SUGGESTIONS.

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## CLEANING BURS.

Frequently burs or cutting instruments are cleaned with a rotary brush with steel bristles mounted on the engine. In these brushes, the sterilizing and cleaning of which is usually neglected, millions of bacteria from different mouths collect. It is therefore advisable to keep a dozen small tooth-brushes with very hard bristles for that purpose, and to use a clean one for every patient. These brushes are cleaned by boiling in hot water and laying in a solution of lysoform. After vigorous shaking they are dipped in alcohol to accelerate their drying, and kept in a covered glass receptacle.—E. Paul, (*Berliner Zahnaerztliche Halbomatsschrift.*)

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## POLISH FOR GOLD CROWNS AND BRIDGES.

Bon-Ami will not only give gold a very high polish, but it will give it a rich, yellow color. The time required to obtain a high polish with "Bon-Ami" is much less than that of any other known substances. A trial will soon convince you of its value. It may be used applying directly on the gold with a little water or by saturating the polishing wheel "cotton or chamois" with same.—Thomas L. Larseneur, Chicago.

# EVERYBODY'S CORNER.

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**Dentist Retires.**—Dr. William A. Day, who has practiced dentistry in Franklinville, N. Y., for nearly fifty years, has retired from his profession on account of ill health.

**Dentist Found Poisoned.**—Dr. N. C. Chatham, a Minneapolis dentist, was found in Chicago in a serious condition. The doctor was taken to the hospital, where he stated he had been poisoned and robbed by inmates of a resort where he has been boarding. It is believed he will recover.

**Travels Long Way to Have Dental Work Done.**—Charles V. Linck, who has been hunting in Alaska and the Canadian Northwest, traveled to Portland, Oregon, to have some dental work done. When Mr. Linck's teeth began to call for attention, he tramped through the Alaskan wilderness to the mouth of the Stikeen and camped there twenty-one days until a steamer came along. He signalled the vessel and arrived at Portland, Oregon. When the work has been completed, he will return to Alaska.

**Confesses Slaying of Dentist.**—Leigh Rhodus, a bandit who is under arrest in East St. Louis, has confessed to the murder of Dr. Michaelis, the Englewood dentist who was shot and killed several months ago. He will be brought to Chicago for trial.

**Plans Tooth Insurance.**—Dr. Norman Haas, a dentist of Evansville, Ind., is working on a novel insurance scheme. His plan is to insure teeth at \$1.50 per year, and if a policy holder loses a tooth in any way, Dr. Haas will replace it with a new one. He plans to operate in every state in the Union, and possibly Canada and Mexico. So far as is known, this is the only insurance company of its kind in the United States.

**Dentist Shoots Man.**—Dr. D. D. Hollenbeck, a dentist in Chicago, Ill., shot and probably fatally wounded Charles W. Howes, a bartender during a quarrel October 28th.

**Dentist Missing.**—Dr. Arthur O'Neill, a dentist in Philadelphia, Pa., disappeared from his office October 28th and no trace of him has been found. Friends and patients of the dentist are unable to account for his absence.

**Gray-Humphrey.**—Dr. L. R. Gray, a dentist in Litchfield, Ill., was married November 9th to Miss Elizabeth Humphrey.

**Dentist Injured.**—Dr. F. E. Follette of Otterbein, Indiana, was injured November 14th, when his automobile exploded. It is believed he will be able to resume work in the course of a short time.

**Practicing Without License.**—Joseph Nelson of Cuyahoga Falls, Ohio, was arrested and fined \$100.00 for practicing dentistry without a license.

**Dentist Missing.**—Dr. Yonker, a practicing dentist of Kankakee, Ill., departed from his office several days ago and has not been heard from.

**Bull Dog Boasts a Gold Tooth.**—A brindle bulldog with a gold tooth prominently displayed is the unique possession of H. E. Whitcomb, Chicago, Ill. The gold tooth is one of the lower incisors and was made by a dentist just as artificial teeth are made for human beings.

**Dentist Shot While Hunting.**—Dr. T. P. Fristoe, a practicing dentist in Red Bud, Illinois, was accidentally shot in the face by one of his friends while out quail shooting November 18th. The shot penetrated his eyes and his condition is serious.

**Dentist Wounded While Hunting.**—Dr. H. M. Eckenrode of Fredericksburg, Virginia, was seriously wounded in the left foot while hunting November 23d, by an accidental discharge of his gun. Several of his toes have been removed and he is still in a serious condition.

**Ten Teeth Pulled, Dying.**—Mrs. C. Gallagher of Mt. Vernon, New York, is in a serious condition after having ten teeth pulled.

**Leaves for India.**—Dr. Mooney of Blue Mound, Ill., left for Lucknow, India, where he will practice dentistry.

**Dentist Quits Practice Rather Than Procure License.**—Dr. E. V. Cates of Nashua, Iowa, on notice from the Iowa Dental Association that he must quit the practice of dentistry or procure a license, decided to quit. He had been practicing fourteen months without a license, and had a good practice.

**Country Won't Pay Dentist Bill.**—Jail prisoners in Cleveland, Ohio, hereafter will have to suffer in silence or pull their own teeth. The county will pay no more dentist bills. The County Prosecutor says the law does not provide for the employment of a dentist for prisoners.

**Fight Kills Dentist.**—In a fist fight between Dr. O. B. Nicholson, a practicing dentist in Grand Prairie, Texas, and Hugh Foster, Dr. Nicholson was fatally injured and died an hour later.

**Dentist Arrested.**—Dr. W. J. Williams, a dentist in Savannah, Ga., was placed under arrest December 2d for practicing without a license.

**Dentist Subdues a Thief.**—After three separate encounters with a man whom he caught in his office, Dr. A. L. Griff, a practicing dentist in Cleveland, Ohio, succeeded in capturing the alleged thief. The thief induced Dr. Griff to call at his home to attend his wife, suffering from an ulcerated tooth. While the doctor was on his way to the house, the thief entered his office through a transom and was found in the office when the dentist returned.



## IN MEMORIAM.

**Dr. D. C. Hopkins**, a practicing dentist in Jonesboro, Arkansas, was found dead in his office November 2d. Death is believed to have been caused from heart disease. He is survived by a widow and one child.

**Dr. Russell O. Calkins**, a young dentist of Bryan, Ohio, died suddenly, October 24th. Death was caused by peritonitis. Dr. Calkins graduated last year from the University of Michigan and was not quite twenty-one years of age at the time of his death.

**Dr. A. J. Bradford**, a well-known dentist in Cincinnati, Ohio, died September 30th from an overdose of Potash taken by accident. He is survived by a widow and two children.

**Dr. J. W. Bender**, a retired of Hagerstown, Maryland, died October 24th. The doctor was eighty-three years of age and is survived by a widow and four children.

**Dr. J. H. Maloney**, a retired dentist in New Orleans, La., died October 31st. He was sixty-nine years old and had practiced his profession in New Orleans for forty years. He is survived by four sons and four daughters.

**Dr. E. F. Evans**, a prominent dentist of Fredericksburg, Texas, died November 7th, after a lingering illness of more than a year's duration. The doctor was 48 years old and is survived by a widow and three daughters.

**Dr. Jesse Phillips**, a dentist in Austin, Minn., was found dead in his home, November 7th. The cause of his death was presumably the result of an overdose of cocaine. He was 36 years old and is survived by a widow.

**Dr. Wm. H. Pifer**, one of Indiana's oldest dentists, died at his home in LaFayette, Ind., November 11th. He was born in 1836 and for over half a century practiced dentistry in La Fayette. He was a veteran of the Civil War, having served in the Seventy-Sixth Indiana Regiment. He is survived by a widow, one son and one daughter.

**Dr. F. A. Banks**, the pioneer dentist of Escanaba, Michigan, and one of the most prominent professional men of the city, died November 20th after an illness of four weeks from typhoid fever. The doctor was 52 years old and is survived by a widow, one son and one daughter.

**Dr. Allen Wolfe**, a dentist at Long Beach, Calif., died November 22d of tuberculosis.

**Dr. Frank Bigelow**, a practicing dentist in Turner Center, Maine, died November 29th from paralysis. Two daughters survive him.

# ANNOUNCEMENTS.

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## **SOUTH DAKOTA BOARD OF EXAMINERS.**

The South Dakota State Board of Examiners will hold its next meeting at Sioux Falls, S. D., January 16th, 1911, beginning at 1:30 p. m., and continuing three days. All applications for examination, together with a fee of twenty-five dollars, must be in the hands of the secretary by January 1st. Applicants who have not complied with the above will not be permitted to take the examination. For further information, blanks, etc., address Aris L. Revell, Lead, S. D.

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## **THE G. V. BLACK DENTAL CLUB**

The G. V. Black Dental Club of St. Paul, Minn., will hold a mid-winter clinic in St. Paul, on February 16-17, 1911.

A very interesting program is being arranged. Operations will be made and papers read by prominent members of the profession. Full program will be published later. The profession generally is invited to attend this meeting.

Members of the profession having anything new to offer for our consideration are most cordially invited to be present and show same. Drs. G. V. Black and C. N. Johnson of Chicago will be in attendance and take part in this meeting.

For further information address R. B. Wilson, secretary, American National Bank Building, St. Paul, Minn.

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## **CHICAGO COLLEGE ALUMNI ASSOCIATION CLINIC.**

The annual clinic of the Alumni Association of the Chicago College of Dental Surgery will be held in the College Building on Wednesday, January 18, 1911. Ethical practitioners are cordially invited to attend. Dr. J. P. Buckley will read a paper.

H. C. PERSCH, Secy.

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**WANTED**—A dentist who is also a registered pharmacist. Good location in northwest part of Illinois. If interested reply at once. Address, "A. B." care American Dental Journal, 39 State street, Chicago, Ill.

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